

Acids and Bases



Acids are water soluble substances that are found in many common products. All acids contain hydrogen atoms.

Ex: HCl(aq) , $\text{H}_2\text{SO}_4(\text{aq})$

Table 1 Examples of Some Common Acids

Common name	Formula	Source or use
vinegar (acetic acid)	$\text{HC}_2\text{H}_3\text{O}_2(\text{aq})$	salad dressing
citric acid	$\text{HC}_6\text{H}_7\text{O}_7(\text{aq})$	oranges, lemons
ascorbic acid	$\text{HC}_6\text{H}_7\text{O}_6(\text{aq})$	Vitamin C
lactic acid	$\text{HC}_3\text{H}_5\text{O}_3(\text{aq})$	sour milk
carbonic acid	$\text{H}_2\text{CO}_3(\text{aq})$	carbonated drinks
acetylsalicylic acid (ASA)	$\text{HC}_9\text{H}_7\text{O}_4(\text{aq})$	Aspirin
sulfuric acid	$\text{H}_2\text{SO}_4(\text{aq})$	car batteries

Properties of bases:

Bases are water soluble substances that are good conductors of electricity. Bases contain the hydroxide ion, OH^- .

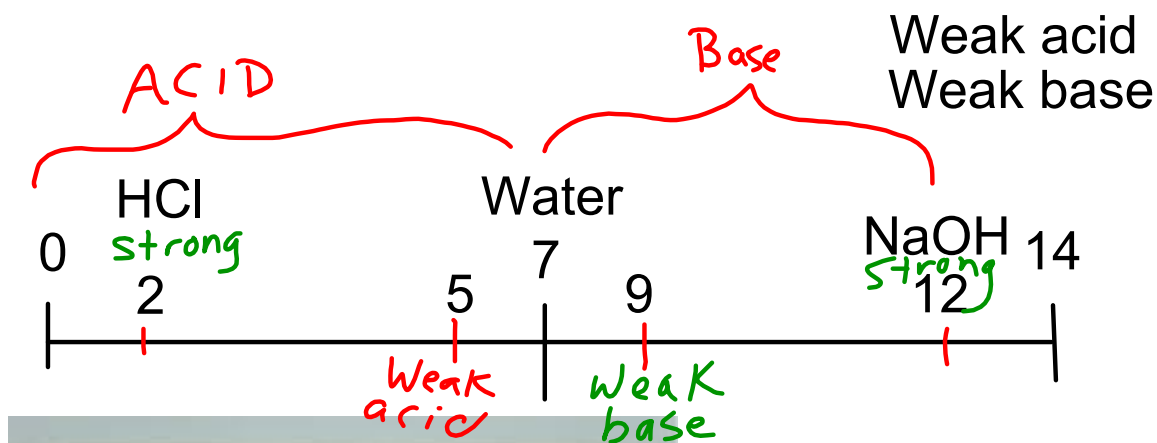
Ex: $\text{NaOH}_{(aq)}$, $\text{Al}(\text{OH})_{3(aq)}$

Table 2 Examples of Some Common Bases

Common name	Formula	Use
sodium hydroxide	$\text{NaOH}_{(aq)}$	drain cleaner
potassium hydroxide	$\text{KOH}_{(aq)}$	soap, cosmetics
aluminum hydroxide	$\text{Al}(\text{OH})_{3(aq)}$	antacids
ammonium hydroxide	$\text{NH}_4\text{OH}_{(aq)}$	ammonia window cleaner
sodium bicarbonate	$\text{NaHCO}_{3(aq)}$	baking soda
potassium sulfite	$\text{K}_2\text{SO}_{3(aq)}$	food preservative

The pH Scale

Chemists use the pH scale to represent the strength of an acid or base. Acids have a low pH and bases have a high pH.

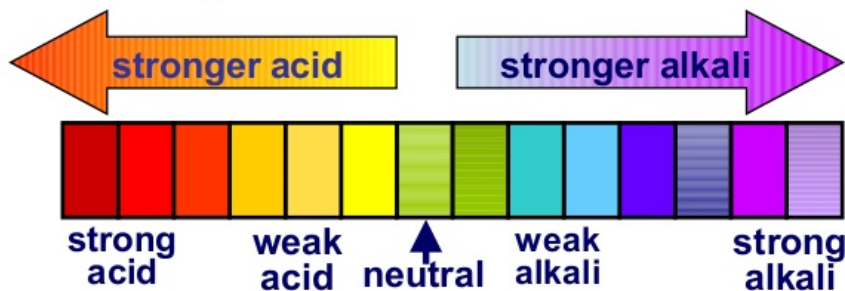


What is universal indicator?

- Litmus is used to show if a solution is acid or alkali.

Litmus does **not** show if the acid or alkali is weak or strong.

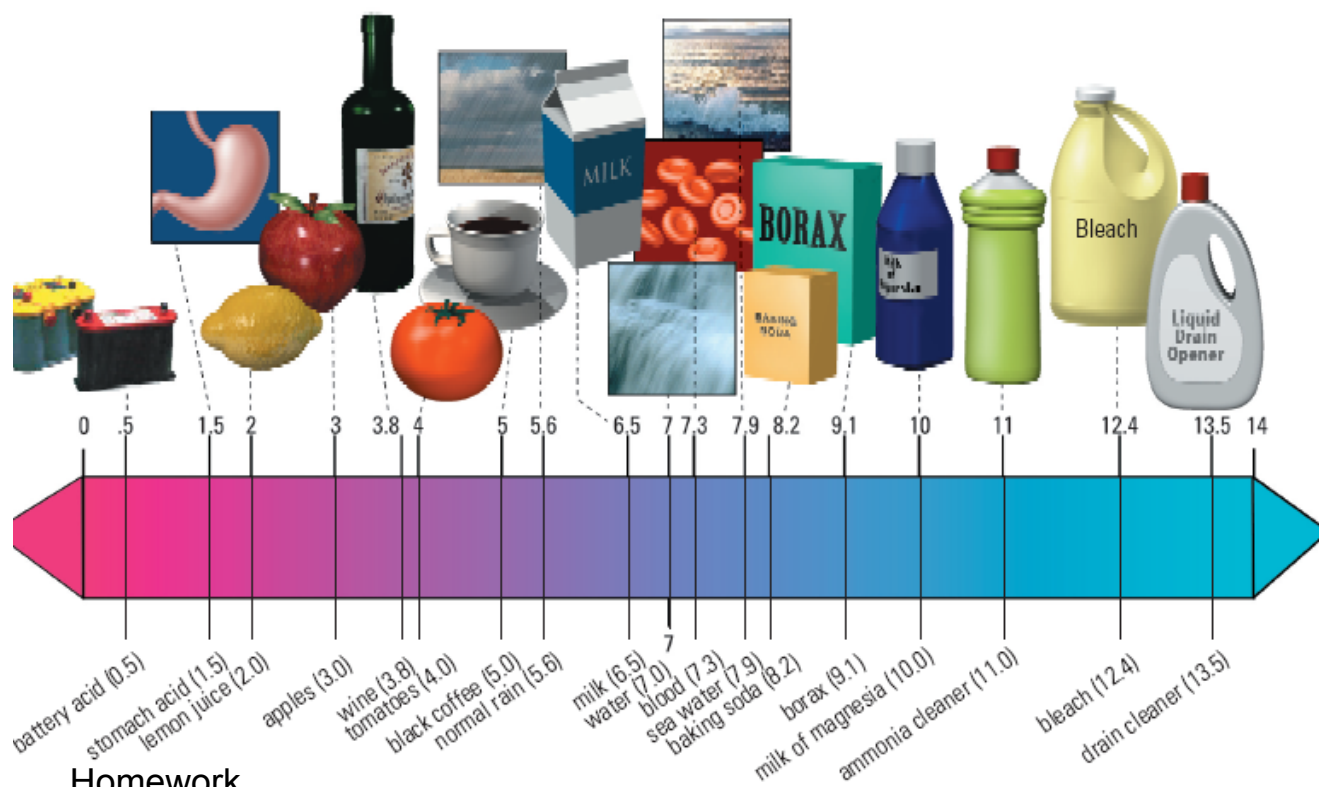
Universal indicator has a range of colours that show how weak or strong the acid or alkali is.



What is the colour for a weak acid?

What is the colour for a strong alkali?





Homework

p 292 question 1

p 295 question 3

p 299 ques 2

Review sheets

Acids react with bases in a
_____reaction.



Use your
Blue table
to help
you name
these.

Name:

Naming Covalent Compounds Worksheet

Write the formulas for the following covalent compounds:

- 1) antimony tribromide _____
- 2) hexaboron silicide B₆Si
- 3) chlorine dioxide _____
- 4) hydrogen iodide _____
- 5) iodine pentafluoride _____
- 6) dinitrogen trioxide _____
- 7) ammonia _____
- 8) phosphorus triiodide _____

Write the names for the following covalent compounds:

- 9) P₄S₈ _____
- 10) O₂ _____
- 11) SeF₆ Selenium hexafluoride
- 12) Si₂Br₆ _____
- 13) SCl₄ _____
- 14) CH₄ _____
- 15) B₂Si _____
- 16) NF₃ _____

How do
we
recognize
these?

<p>Binary Ionic</p> <p>metal + non-metal</p> <p>NaCl</p>	<p>Ionic-multicharged</p> <p>metal + non-metal</p> <p>↓ ↓</p> <p>Roman numeral is the charge could be ide ate ite</p>
<p>Polyatomic</p> <p>metal + polyatomic ion</p> <p>Na_3PO_4</p>	<p>Molecular (Covalent)</p> <p>nonmetal + nonmetal</p> <p>CH_4 NH_3</p>

Homework

p 292 question 1

p 295 question 3

p 299 ques 2

Review sheets